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PUBLIC HEALTH REPORTS.

PELLAGRA IN ITALY.[a]

By R. A. C. WOLLENBERG, Assistant Surgeon, United States Public Health and Marine-Hospital Service, Naples, Italy.

Pellagra, despite the extensive interest which is being taken in its suppression, continues to spread in certain regions of Italy. A vigorous campaign has been waged against the disease for a number of years, laws concerning it have been enacted, improvements in grain culture have been encouraged, sanitation has widely improved; the number of pellagrins, however, is diminishing but slowly. The sum which is annually expended for salt, proper food, and hospital accommodations for the care and treatment of the poor affected with pellagra is enormous.

During the past twenty-five years the extent of the disease has lessened considerably in the northern part of Italy—Piedmont, Lombardy, Venetia, and Emilia—while there has been a persistent spread in central Italy, very notably in Tuscany, Marches, and Umbria. The disease is now appearing in alarming proportions in Latium and in Abruzzo and Molise, compartments in which it was unknown some years ago. What is most striking is that the disease invaded southern Italy in 1908, cases having occurred in the vicinity of Naples and in Calabria. At present pellagra appears to be firmly established in the lower as well as in the upper portion of the Italian peninsula. The reason for this better showing in the north is not altogether plain, but is partly attributed to the economic, social, and sanitary improvements that have been effected there in recent years.

In the last triennium the disease was markedly reduced in the provinces of Arezzo, Bologna, Brescia, Florence, Forli, Macerata, Mantua, Modena, Padua, Pavia, Perugia, Pesaro, Rovigo, Treviso, and Venetia. An increase took place in Bergamo, Milan, and Novara. Statistics for central Italy show marked improvement in the province of Perugia. For the rest, the status remains nearly unchanged. In southern Italy there are new cases in the provinces of Avellino and Cosenza. In the same period the total number of new cases reported for the whole country has been gradually reduced as follows:

	New cases.
1906	6,783
1907	5,307
1908	2,766

The total number of pellagrins in Italy at the present time may be estimated at less than 50,000. Considering that during the years 1906 and 1907 pellagra was the cause of 1,873 deaths and 1,293 cases of insanity, together with the long duration of the illness and its effect on the earning capacity of the afflicted individuals, the above figures are sufficiently startling.

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[a] This report is of special interest at the present time because of the fact that many cases of pellagra are being found throughout the southern United States.

Total number of pellagrins by census.

	Number.
1879	97,855
1881	104,067
1899	72,603
1905	55,029

Deteriorated maize being held responsible as the one special etiologic factor, seasonal variations in the course of the prevailing epidemic may be expected and have long been recognized. The spring exacerbation commences in March or April, reaches its maximum severity in May, and ends in July. The fall increase commences in August, reaches the maximum in the colder month of October, and ends in December. No month, however, is free. Ceni and Besta, from their studies on the cause of pellagra, believe these seasonal recrudescences to be due to corn smut consisting of two distinct fungi, and that the corn smut is the source of the specific poisons. The exacerbation of the earlier months is believed to be caused by the *aspergillus fumigatus,* and the autumnal exacerbation by the *aspergillus flavescens.* The clinical aspects of the cases are the same, no feature appearing peculiar to either period.

Further studies on etiology have appeared to show a hereditary predisposition. The investigations of Probizer among school children show the offspring of parents afflicted with pellagra to be quite generally of poor development, both physical and mental. They are usually anæmic, and subject to various nervous and digestive disorders, as headache, dullness, listlessness, dyspepsia, gastralgia, enteralgia, nausea, and vomiting. The mental symptoms manifest themselves especially at puberty.

The mortality seems to be lessening. It changed very little after the law [a] of 1902 came into effect until the years 1906 and 1907, when there was a fall in the number of total deaths to less than $\frac{1}{5}$ of those during the preceding years.

Total deaths from pellagra in Italy.

	Number.
1898	3,987
1899	3,836
1900	3,788
1901	3,054
1902	2,376
1903	2,647
1904	2,363
1905	2,359
1906	439
1907	376

The hoped-for results and salutary intent of the law—to prevent the consumption of maize of poor quality—have hardly been realized. The law permits the milling of low-grade maize in case it is not to be used as aliment for man, but this provision is held to be difficult to enforce, proper sanitary supervision of country districts being very difficult. Unripe, moist, or mildewed maize may be placed in storage, or a good grade of maize may deteriorate in poor storehouses or during very humid weather. Unscrupulous millers may use flour prepared from spoiled maize as an adulterant. A number of poor or parsimonious laborers subsist partly on flour made from impaired maize and originally intended to be used for fodder. This flour may also be fed to his workmen by an unfeeling "padrone." Sanarelli holds sophistications of this nature to be responsible for a great part of the present conditions, notwithstanding the penalties prescribed by the law against such infringements. To combat these evils he recommends a municipal milling service to be established in communities afflicted with pellagra, and the prohibition of milling of deteriorated maize for any purpose whatsoever, in that way making its consumption absolutely impossible.

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[a] See editor's note, page 1053.

In the treatment of the disease, Ghirardini has recently used atoxyl by injection. He states it to be well tolerated, and to improve the general nutrition, the psychic disturbances, and the ataxia. Gatti used serum from the recovered pellagrin in the treatment of two cases of typhoid pellagra. A general reaction appeared after one hour, with a rise in temperature. The fever was of short duration, defervescence lasting from one to three days, during which time there was a remission of all acute symptoms.

The school lunch prepared for children in pellagrous communities, as provided for by law, has given excellent results.

Number of pellagrins in compartments by census.

	1881.	1889.	1905.
Piedmont	1,328	1,223	1,012
Liguria	56	30	56
Lombardy	36,630	19,557	15,746
Venetia	55,881	39,882	27,781
Emilia	7,891	4,617	3,357
Tuscany	924	1,125	1,137
Marches	406	920	1,436
Umbria	872	5,103	4,250
Latium	32	146	195
Abruzzo and Molise	....	....	59

EDITOR'S NOTE.—There was also submitted with the above report a table showing the number of new cases of, deaths and recoveries from and cases of insanity due to, pellagra in each of the provinces of Italy during the years 1906 and 1907. The statistics of new cases reported were also given for the year 1908.

The law referred to on page 1052 is one approved July 21, 1902, for the prevention and cure of pellagra in Italy. The following is taken from the above-named law and the regulations promulgated for its enforcement:

Sale and storing of corn and its derivatives.—It is forbidden to sell or store for sale immature, musty, or spoiled corn, whether in the form of grain or flour and all products of the same which have undergone deterioration during the period of transportation, or subsequently to being received and stored. The grinding, utilization, and exchange of corn and its derivatives for other purposes than use as food supplies for human beings are made subject to authorization by the local authorities and to immediate confiscation in case of such authorization being withheld. Sanitary officials shall have the right to inspect stores of grain and flour; also places where manufactured products are made and sold. In a community in which an epidemic of pellagra is present the local authorities shall have the right to inspect and control the curing, storing, and consumption of corn in the form of foodstuff, and the local pellagrological commission may order the construction of a desiccator for the proper curing of corn.

Importation of corn.—Cargoes of corn from foreign countries are subject on the frontier or at customs-houses to examination and detention. In certain provinces designated by the minister of the interior the prefect of the province acting with the provincial council of health shall appoint a corps of experts selected from among qualified physicians, and graduates of chemistry, natural sciences, and agriculture. On the arrival of a vessel carrying a cargo of corn one or more of the said experts shall be designated to examine the cargo. Samples of the corn shall be taken from different depths if the cargo is loose and from different bags if the corn is inclosed. The samples shall be placed in glass containers, which shall be stoppered, covered with cloth, and sealed, and care shall be taken to keep the identity of each sample distinct. If the sample be declared good, the cargo may be at once released. The sample shall be held for three months in a designated place. The receivers of the cargo may protest against the findings of the experts within fifteen days and demand examination in a government laboratory.

Government aid.—Appropriation is made for the establishment and operation of curative institutions for the care and treatment of pellagrins; also for the encouragement and aid of improved agricultural processes.

Pellagrins.—Every case of pellagra, whether developed or in the incipient stage, shall be reported. The communal board shall have the care of destitute pellagrins. Dietetic treatment is required. Where this can not be procured by the patients the pellagrins shall be provided for in special places for the treatment of the disease. In communities affected with pellagra the minister of finance is authorized to distribute food to the poor pellagrins and their families.

UNITED STATES.

[Reports to the Surgeon-General, Public Health and Marine-Hospital Service.]

Reports from San Francisco, Cal.—Plague-prevention work at San Francisco, Oakland, and Point Richmond, and in Alameda and Contra Costa counties, Cal.

Surgeon Blue reports:

SAN FRANCISCO, CAL.

Date of last case of human plague: Sickened, January 30, 1908.
Date of last case of rodent plague: October 23, 1908.

Week ended July 3, 1909.

Dead inspected	93
Plague	0
Premises inspected	1,768
Houses disinfected	8
House destroyed	1
Buildings condemned	9
Nuisances abated	151